

4607

A GEOLOGICAL AND GEOCHEMICAL REPORT

ON

THE RAIN CLAIM GROUP

8 MILES NORTH-EAST OF AIKEN LAKE

OMINECA MINING DIVISION

BRITISH COLUMBIA

MINERAL CLAIM MAP 94 C/ 12 E AND 5 E

Latitude: $56^{\circ} 30' N$

Longitude: $125^{\circ} 35' W$

FOR

SEREM LTD.

BY

P. SONNENDRUCKER, P. ENG.
GEOLOGICAL ENGINEER

Field Work: August 10 - 25, 1972
June 27 - July 20, 1973

Report: August 1973

Department of
Mines and Geotechnical Resources
ASSESSMENT REPORT
NO. 4607 MAP _____

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1. INTRODUCTION

A reconnaissance exploration program for Lead and Zinc by geochemical stream sampling was carried out by SEREM LTD. in the Omineca Mountains during the 1972 field season (Operation Ingenika 1972).

Several geochemical silt anomalies were detected and lead-zinc showings in carbonate rocks were examined.

Ten mineral claims, called RAIN M. C. # 1 - 10, were located on two showings, 8 miles N-E of AIKEN LAKE.

A surface exploration program of geochemical soil sampling and geological mapping was conducted for a few days at the end of August 1972, and stopped because of weather conditions. This program was resumed from June 27 to July 20, 1973.

This report describes the work done on RAIN GROUP, discusses the results and presents conclusions and recommendations. The survey data is presented on a geological map and a composite geochemical map, scale 1" to 200'.

2. PROPERTY AND OWNERSHIP

The RAIN # 1 - 10 Mineral Claims were located for SEREM LTD. on August 4, 1972 and recorded at Smithers Mining Recorder, Omineca Mining Division, on August 9, 1972 under Records No. 114,341 - 114,350, inclusive.

Notice to group the 10 Mineral Claims into the RAIN GROUP was filed on August 17, 1973, together with application for certificate of work.

The RAIN GROUP is owned by SEREM LTD., 914-850 West Hastings Street, VANCOUVER 1, B. C.

3. LOCATION AND ACCESS

The RAIN GROUP is located 8 miles North East of AIKEN LAKE in the north-eastern part of the LAY RANGE between MESILINKA and SWANNELL RIVERS, Aiken Lake Map Sheet 94 - C. The property overlaps Mineral Claim Maps 94 C - 12 E (not yet published) and 94 C - 5 E at latitude $56^{\circ} 30' N$ and longitude $125^{\circ} 35' W$, in the Omineca Mining Division.

Access to the property is by helicopter from Aiken Lake. From a fly camp set up close to the showings, line cutting, geochemical sampling and geological mapping was carried out for a few days in August 1972. Detailed geological mapping and geochemical soil sampling was

carried out by chartered helicopter from Aiken Lake in June - July 1973.

4. PHYSIOGRAPHY

The RAIN GROUP is located on the south flank of a mountain ridge rising to the West of the SWANNELL RIVER. Elevations range from 5,500' at the "Fly Camp Meadow" to 6,570' at the summit.

Timberline is close to the Fly Camp Meadow. An irregular band of alpine fir outlines the base of the slope and patches of juniper grow on the timberline areas. Sub-alpine meadows cover the slope above 5,700' elevation. A ravine cross-cuts the slope between two of the main showings.

Loose angular rock fragments and felsenmeer indicate strong mechanical disintegration by frost action. Because of the regular slope, these rocks are not greatly removed from their sub-outcropping beds.

5. GEOLOGY

a) Regional:

In this part of the Omineca Mountains, Lead-Zinc mineralization occurs in lenticular carbonate formations of the INGENIKA GROUP, which is underlain by metamorphic formations of the TENAKIHI GROUP. Exact geological relationships between these two Groups are not exactly

defined, but it is generally felt that a small unconformity exists between the two formations. The biotite metamorphic isograd is taken as the top of the TENAKIHI GROUP. This isograd appears roughly parallel to the regional stratigraphic strike.

The age of the TENAKIHI GROUP and part of the INGENIKA GROUP is Late Proterozoic. Regional studies of these formations are currently being made by the G.S.C. to determine more precisely the group inter-relationship.

b) Local:

The claim group is underlain by an assemblage of clastic and carbonate material of the INGENIKA GROUP, Units 2 and 4, Aiken Lake Map Sheet, GSC 1030A. Rock exposures are well developed in cliffs bounding the claim group to the North.

E. F. ROOTS (GSC Memoir 274, p.60) states: "On the mountain southwest of Mount Lay, four bands of blue-grey, massive to bedded, non slaty limestone, about 100 feet thick, are separated by 100 to 500 feet of black, dark grey and brown, slaty limestone, and grey-green slaty calcareous schists, chlorite schists, quartzite and grit. Some of the limestones have been recrystallized into a fine-grained variegated marble. Ivory-coloured, sugary, micaceous limestone, in thin beds separated by partings of bright green chlorite

slate, is widely distributed throughout this assemblage, but comprises only a small part of the total rock".

A local stratigraphic column was established using the Tenakihi Group as the base on the NorthEast and cross-cutting the Ingenika Group along a Southwesterly striking ridge. The sequence of units constituting the sedimentary assemblage consists generally of grit, impure sandstone, green argillite, grey limestone, black thin bedded limestone. These four elementary sequences underlie the property. (see RAIN GROUP - Geology 1" = 200').

Around the summit, unit 14 is a grey limestone with small black hairlike laminae and very small light grey ovoidal structures.

Tan dolomitic zones occur in this grey limestone close to thin bedded black limestone (Units 11-14). This dolomite is secondary and two facies are known, one a grey fine crystalline dolomite and the other a cream-white coarse crystalline dolomite. Mineralization is enclosed in the latter facies which cross-cuts the grey dolomitized limestone.

Some grey carbonate beds with fine pyrite were noticed in lower elementary sequences. Hematite was found in a few clastic facies between limestone units.

c) Mineralization

The "A" showing (on RAIN M. C. #4) contains disseminated galena, honey sphalerite and minor pyrite in a banded massive limestone of Unit 10. The very fine grained sphalerite is hard to see in hand specimen, but a grab sample assayed:
Pb: 0.82% - Zn: 3.68% - Ag: 0.10^{3.4} oz./t - Ba: 14.5%
The showing appears stratiform in that the mineralization trends with the bedding. Strike length is approximately 200 feet and open to the South East.

A north-easterly trending fault cuts the mineralization off to the north-west. The width has a potential of 100 feet, although not continuous with barren grey dolomite bands separating mineralized zones.

The "B" showing (on RAIN M. C. # 7) is cross-cut by three old trenches along its strike. Strike length is 700 feet with apparent width of 30 feet. The mineralization does not appear continuous over the total width, but is located again in bands with near barren zones between. Barite is noticeable. Two hand specimens were analyzed:
Pb: 4.53% - Zn: 4.20% - Ag: 0.91^{3.1} oz./t - Ba: 31.0%
Pb: 6.88% - Zn: 1.04% - Ag: 1.56 ox./t - Ba: 48.5%

Several dolomitized floats with fine galena were found 600 feet uphill from the last south-eastward trench and 1200 feet south-east of the same trench (on RAIN M. C. # 9).

A mineralogical study of polished sections of these specimens indicate a fissural impregnation-type for "A" showing and a vein-filling type for "B" showing. Quartz, ankerite and calcite were noted in thin sections.

6. GEOCHEMICAL SURVEY

a) Survey method

A 7,200' long base line was established with cross-lines on 400' intervals. Stations were marked at 100' intervals along the base line and cross-lines. All surveying was carried out with Silva Ranger Compass and Topofil. Because of the light forest cover, this survey was quickly and easily done without any ecological disturbance.

A total of 50,600' of line was picketed.

b) Sampling method:

A total 181 soil samples were collected at 200' intervals during the 1972 survey and 72 additional samples were collected in July 1973, some at 100' intervals from line 16S to line 32 S.

Soil samples were taken under the organic cover.

Swampy conditions (Fly Camp Meadow) and glacial till (low pass on South claims) were encountered. The poorly developed thin soil cover on the hillside was considered to have residual characteristics.

c) Assay method:

Assays were run for Pb and Zn by Vancouver Geochemical Laboratories (Assay reports #72-79-011, 73-79-014 p.p., 73-79-021 p.p.).

Samples were dried in a hot air drier, then ground to - 80 mesh. 0.50 g. portions of the - 80 mesh fraction were weighted with a torsion balance.

Extraction was by hot HClO_4 and HNO_3 digestion and detection by using a Techtron A. A. 5 (Atomic Absorption Spectrophotometer).

d) Results and interpretation

For the 181 soil values at 200' intervals:

Range of values: Pb: 10 - 1100 ppm (with one 4130 ppm)
Zn: 18 - 2200 ppm (with one 4000 ppm)

Distribution of values by logarithmic classes:

ppm	8	15	30	60	120	240	480	960	2000	4000	8000
Pb		3	59	49	20	23	13	11	2	-	1
Zn		-	6	13	54	64	27	8	6	2	1

.... 10

The Pb-distribution is bimodal. The Zn-distribution is not clearly bimodal. However, the Pb-Zn correlation diagram (Fig. 3) shows the strong positive correlation between these two elements with two distinct populations separated by 100 ppm Pb-value.

Two geochemical populations are graphically defined:

- The Background population (Median: Pb = 30 ppm
Zn = 110 ppm)
- The Anomaly population (Median: Pb = 230 ppm
Zn = 280 ppm)

The Cumulative Frequency Distribution Diagram (Fig. 4), shows the existence of these two populations.

Values of Pb and Zn in soils were respectively plotted on Fig. 5 and 6. Comparing these maps, one can see the Zn-anomaly on "B" showing is downhill from the Pb--anomaly.

The Zn : Pb ratio was calculated and plotted on Fig. 7. Characteristics grouping of Zn : Pb points with less than 1.00 ratio outline areas for further work. These zones are up-hill from the old reconnaissance trenches.

7. CONCLUSIONS AND RECOMMENDATIONS

The geological mapping indicates a stratabound character to the mineralization (likely a peneconcordant-type).

The geochemical survey outlines a 4,400' long anomalous zone, around the "B" showing.

I have recommended to SEREM LTD. a drilling program of short holes (Packsack or Winckie) along cross-lines at 100' intervals.

ANNEXE I

Statement of Expenses

The following is a breakdown of expenses incurred in carrying out the work on the RAIN GROUP in August 1972 and from June 27 to July 20, 1973:

Geological Survey

Salaries:	P. SONNENDRUCKER Geological Engineer	5 days	\$269.35
	P. TEGART Geologist	15 days	\$475.00
	C. BOYLE Junior Geologist	5 days	\$125.00
	C. CARON Junior Geologist	5 days	\$100.00
			<u>\$969.35</u>

Geochemical Survey

Line cutting: 50,600' picketed

Soil Sampling: 253 samples

Salaries:	J. THOMAS, line cutter & sampler	8 days	\$240.00
	H. ABRAHAM, line cutter & sampler	10 days	\$300.00
	P. MURDOCK, line cutter & sampler	2 days	\$ 60.00
Assaying: (VANGEOCHEM LAB)			<u>\$332.05</u>
			\$932.05
	D. GRIFFIN, Cook	24 days	\$319.92
Food expenses (\$6.00/man/day)			\$444.00
Helicopter expenses (not included in this statement)			

TOTAL \$2,665.32

ANNEXE II

STATEMENT OF QUALIFICATIONS

I, PIERRE F. SONNENDRUCKER, with business address in VANCOUVER, B. C. , hereby certify that :

1. I am a registered Professional Engineer in the Province of British Columbia.

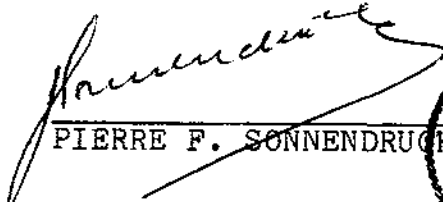
2. I am a graduate of the University of NANCY, FRANCE, with the diploma of Geological Engineer of the "Ecole Nationale Superieure de Geologie Appliquee et de Prospection Miniere" (Ingenieur Geologue ENSG, promotion 1954).

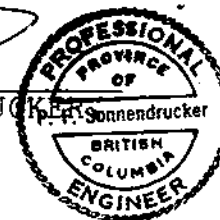
3. I have practised as a Geologist since 1957 in West Africa (Ivory Coast, Guinea), France and Canada (British Columbia).

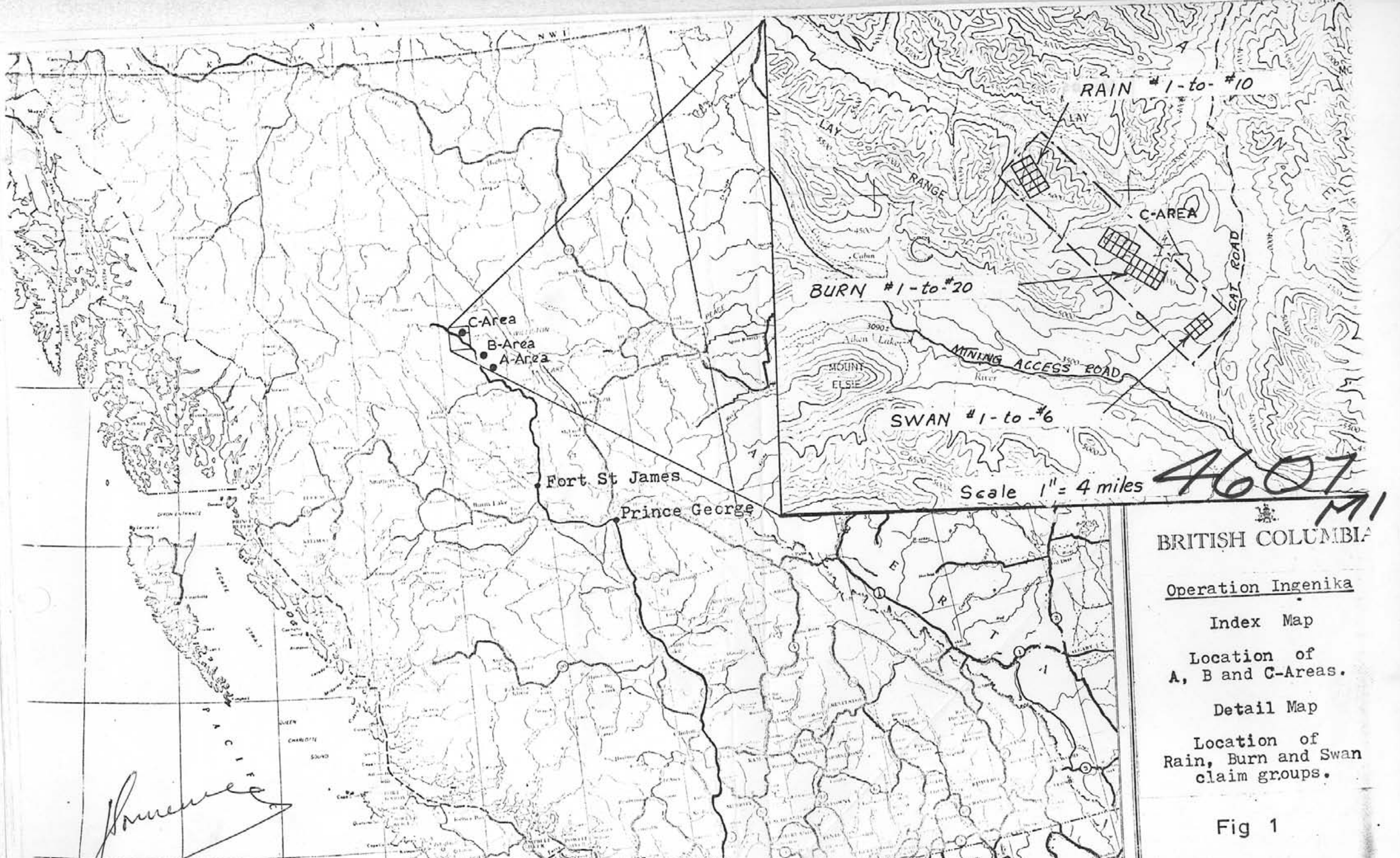
4. I am employed by SEREM LTD., 770-2100 Drummond Street, MONTREAL 107, Quebec, as a Senior Geologist. My residential address is 2021 West 59th Avenue, Vancouver 14, B. C.

5. I have personally participated in the field work and supervised all the completed work included in this report. I have interpreted the data resulting from this work.

Respectfully submitted,


PIERRE F. SONNENDRUCKER





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 BRITISH COLUMBIA

Operation Ingenika
 Index Map
 Location of
 A, B and C-Areas.
 Detail Map
 Location of
 Rain, Burn and Swan
 claim groups.

Fig 1

Handwritten signature

MINERAL CLAIM MAP (May 1973)

Fig 2



RAIN

94C/12E

94C/11W

125°30' 125°30'

56° 30'

E.R. Beckwith
Calgary Alta.

94C/5E

94C/6W

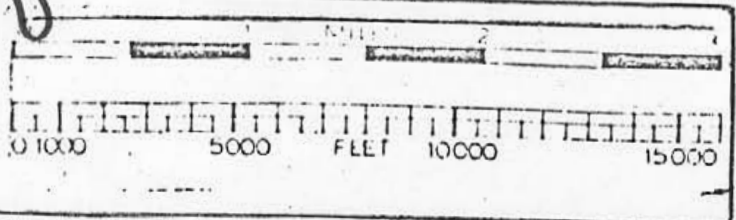
BURN

SWANNELL

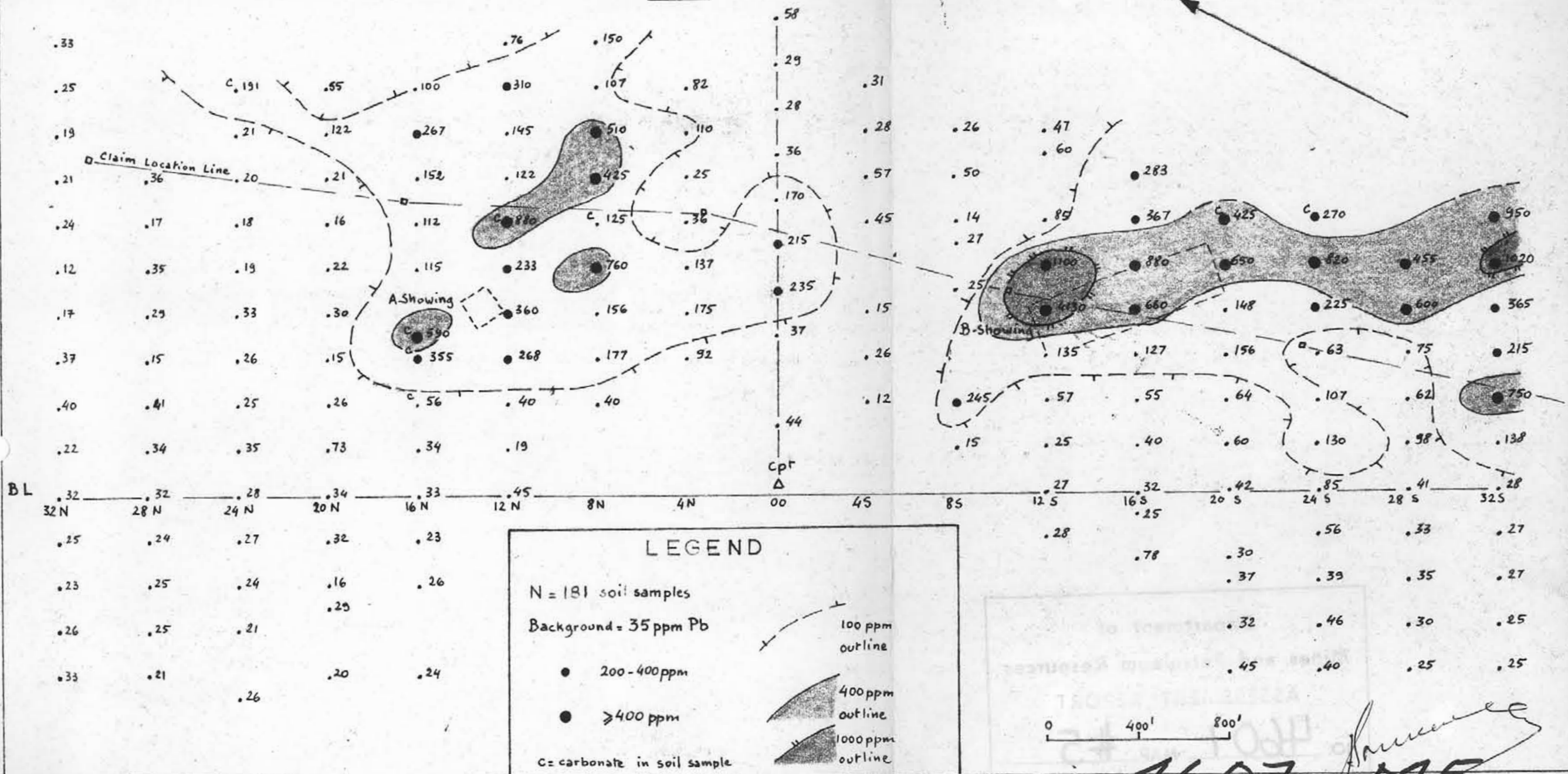
SWAN

River

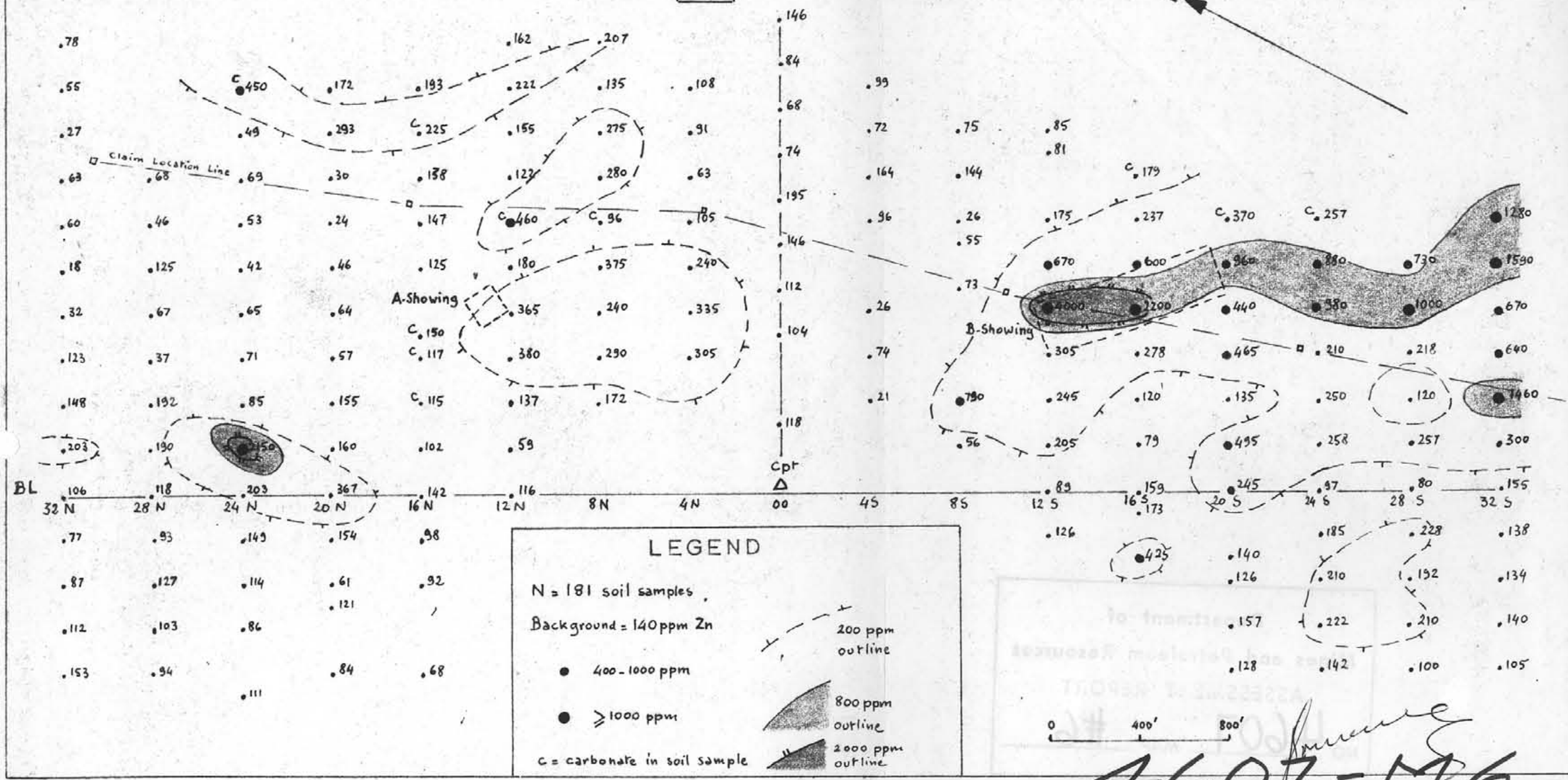
4607
MA



Pb



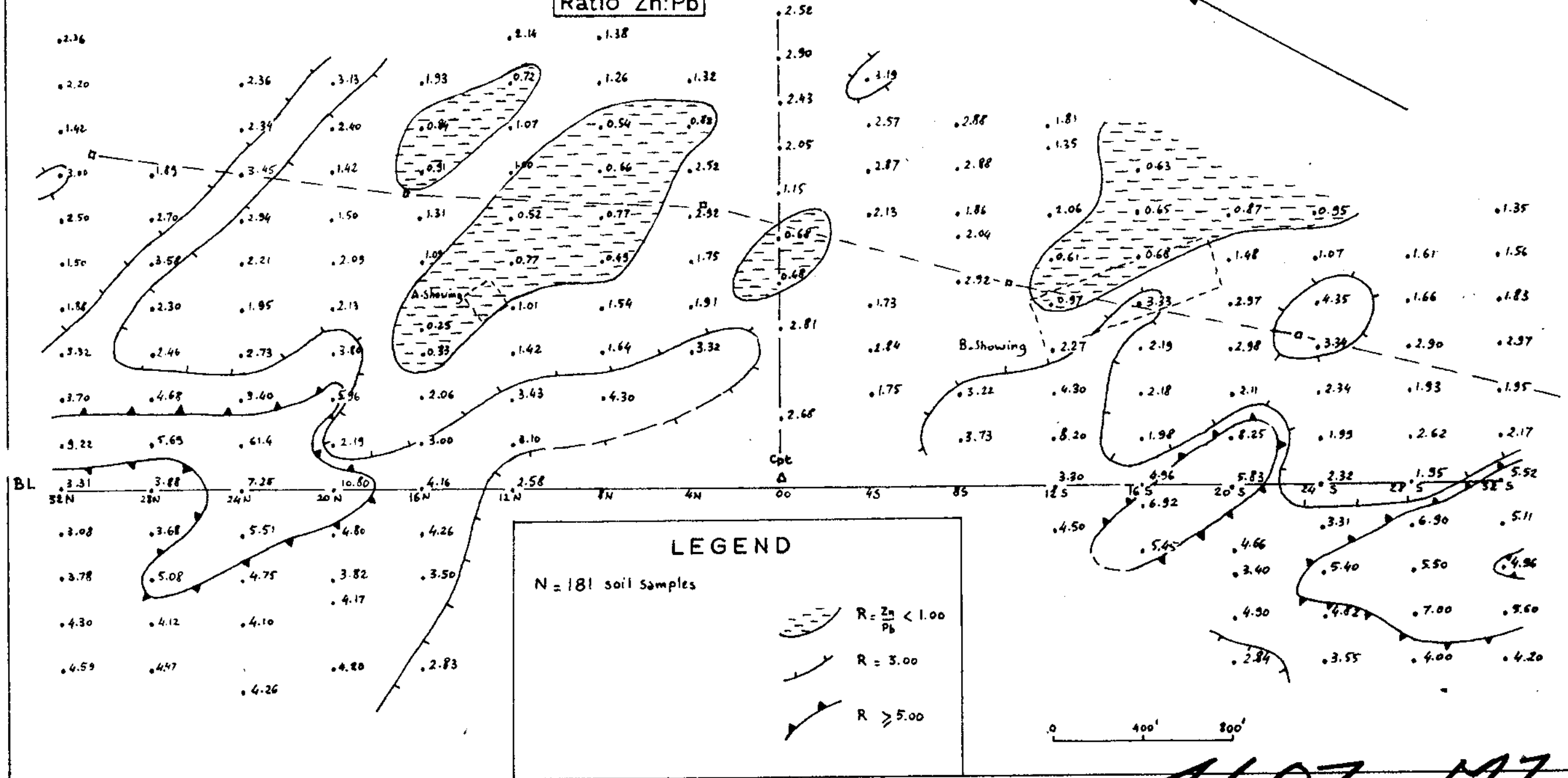
Zn



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RAIN GROUP
Geochemical Survey in Soils

Ratio Zn:Pb



LEGEND

N = 181 soil samples

$R = \frac{Zn}{Pb} < 1.00$

$R = 3.00$

$R \geq 5.00$

4607-177

1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7

9 OPERATION INGENIKA 1972

8 RAIN GROUP

7 Geochemical Survey in Soils

Fig 3

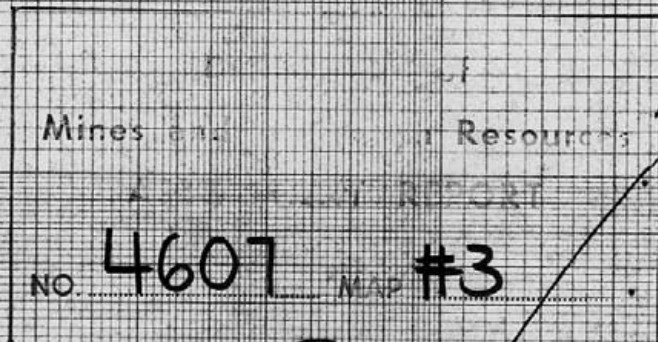
5 Pb-Zn Correlation Diagram

Zn
ppm

1000

100

10



Mines

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MAP #3

B

A

$N_A = 56$ samples
 $Pb_A = 230$ ppm
 $Zn_A = 280$ ppm

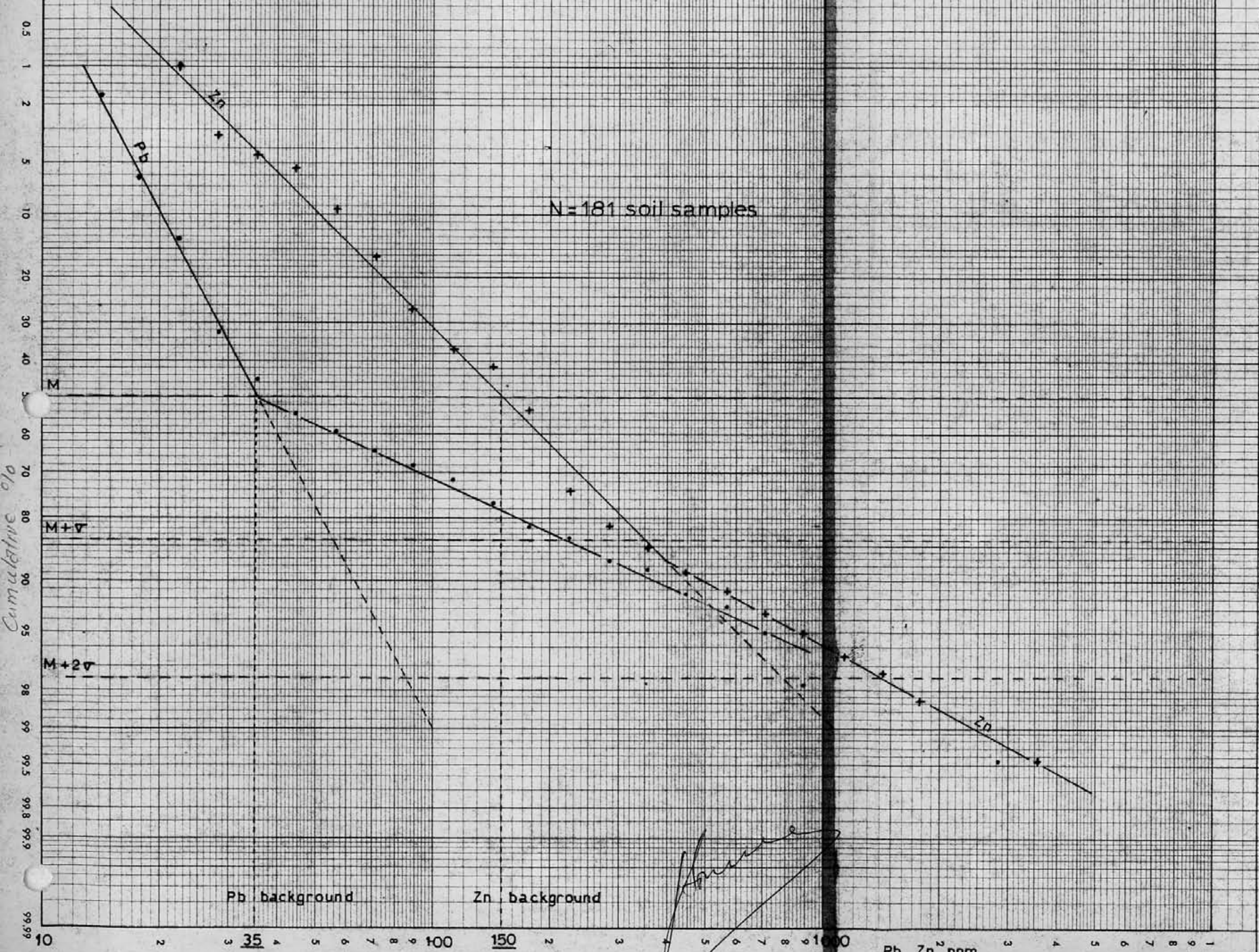
$N_B = 125$ samples
 $Pb_B = 30$ ppm
 $Zn_B = 110$ ppm

Pb ppm

OPERATION INGENIKA 1972
RAIN GROUP
Geochemical Survey in Soils

Fig 4

Cumulative Frequency Distribution for Pb and Zn



Pb Zn ppm
4607-MA

SEREM LTD.
 OPERATION INGENIKA
 1972 C-AREA
 RAIN GROUP
 GEOLOGY

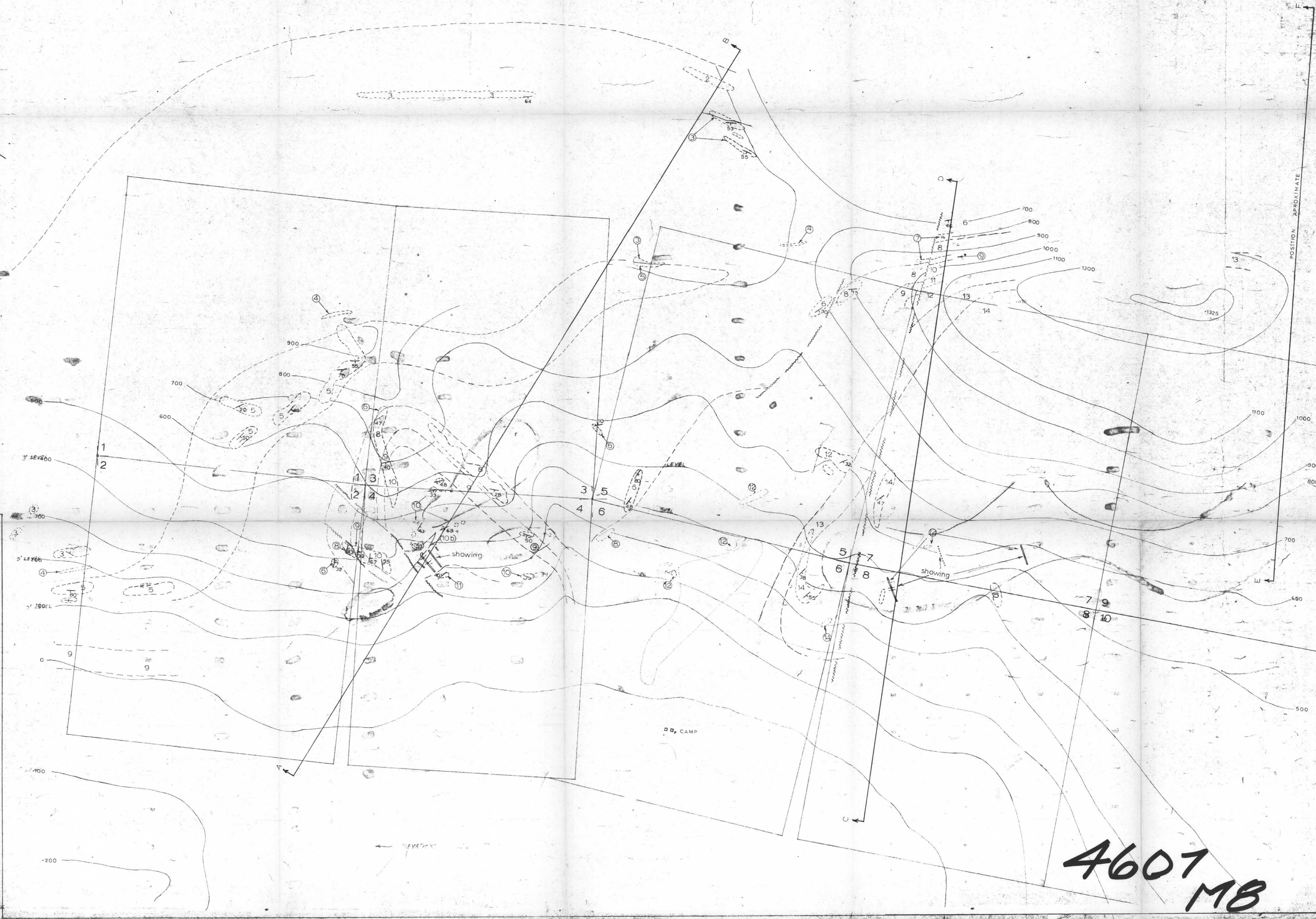
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 NO. 4607 # 8

SCALE: 1 in = 200 feet (1/2400)
 0 800 feet
 0 200 metres

PT

INGENIKA GROUP	UPPER LIMESTONE	
	15	Argillite
	14	Limestone
	13	Brown argillite
	12	Limestone
	11	Thin bedded black limestone
	10	Limestone
	10a	Brown argillite
	9	Thin bedded black limestone
	8	Limestone
	7	Thin bedded black limestone
	6	Brown argillite
	5	Limestone
	4	Quartzite
	3	Argillite (Green & brown)
2	Limestone	
1	micaceous argillite	

boundary of base



4607 MB

SEREM LTEE
OPERATION INGENIKA
 1972 C-AREA
 RAIN GROUP

ROCK GEOCHEMISTRY

Pb	Zn	Ba
< 25 ppm	< 20 ppm	< 120 ppm
25-50 ppm	20-40 ppm	120-240 ppm
50-100 ppm	40-80 ppm	240-480 ppm
100-200 ppm	80-160 ppm	480-960 ppm
> 200 ppm	> 160 ppm	> 960 ppm

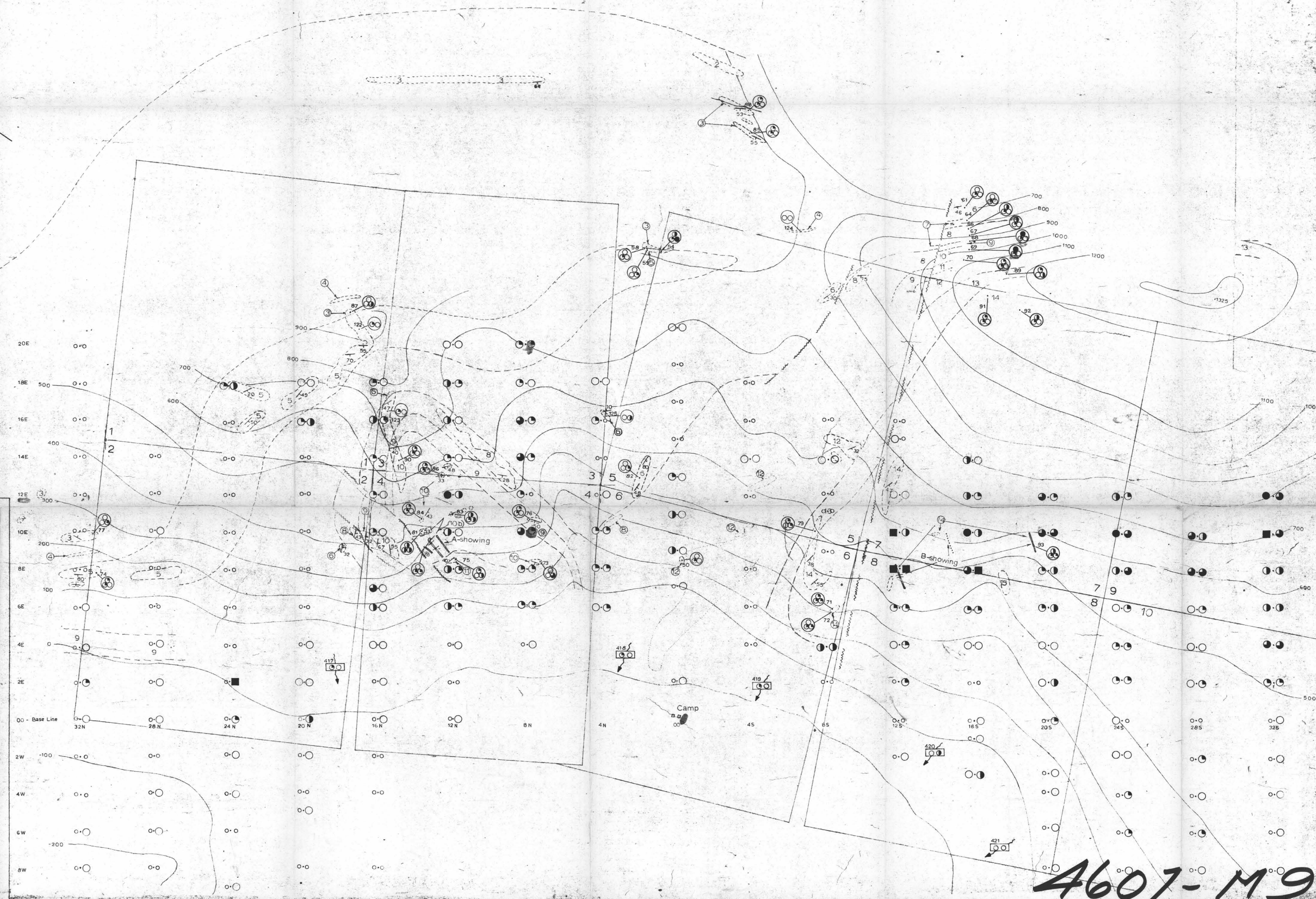
GEOCHEMICAL SURVEY IN STREAM SEDIMENTS

Pb	Zn
< 60 ppm	< 240 ppm
60-120 ppm	240-480 ppm
> 120 ppm	> 480 ppm

GEOCHEMICAL SURVEY IN SOILS

Pb	Zn
< 50 ppm	< 100 ppm
50-100 ppm	100-200 ppm
100-200 ppm	200-400 ppm
200-400 ppm	400-800 ppm
400-800 ppm	800-1600 ppm
800-1000 ppm	1600-2000 ppm
Deposiment > 1000 ppm	> 2000 ppm

Mines and Petroleum Resources
 ACCESSIBLE SCALE: 1in = 200feet(1:2400)
 No. 4607 #9



4607-M9